

What is claimed is:

1. A vehicle locating system for directing a user to a remotely-located vehicle, comprising:

5 a vehicle-mounted location unit including a first global positioning receiver for receiving satellite location signals, wherein said first global positioning receiver operates at a duty cycle sufficient to maintain predetermined aiding data, wherein said vehicle-mounted location unit processes vehicle location data, and wherein said vehicle-mounted location unit further includes a first local data transceiver for
10 transmitting said predetermined aiding data; and

a portable fob including a second global positioning receiver for receiving said satellite location signals, wherein said second global positioning receiver operates substantially only when said user initiates a request for directions to said vehicle, wherein said portable fob further includes a second local data transceiver for receiving
15 said predetermined aiding data from said first local data transceiver, and wherein said portable fob processes fob location data in response to said predetermined aiding data.

2. The vehicle locating system of claim 1 wherein said fob location data is transmitted from said second local data transceiver to said first local data transceiver,
20 wherein said vehicle-mounted location unit determines a bearing in response to said fob location data and said vehicle location data, and wherein said bearing is transmitted from said first local data transceiver to said second local data transceiver.

3. The vehicle locating system of claim 2 wherein said portable fob further
25 includes an electronically-controlled display for displaying said bearing.

4. The vehicle locating system of claim 1 wherein said portable fob further includes a dedicated GPS baseband processor for processing said fob location data.

5. The vehicle locating system of claim 4 wherein said portable fob further includes a hardware correlator for processing said fob location data.

6. The vehicle locating system of claim 1 wherein said aiding data is
5 comprised of satellite ephemeris data.

7. The vehicle locating system of claim 1 wherein said aiding data is comprised of satellite clock data.

10 8. The vehicle locating system of claim 1 wherein said aiding data is comprised of satellite Doppler data.

9. The vehicle locating system of claim 1 wherein said fob location data comprises geographic coordinates.

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10. The vehicle locating system of claim 1 wherein said fob location data comprises pseudo-range data.

11. A method of directing a user to a remotely-located vehicle, wherein said
20 user carries a portable fob communicating with a vehicle-mounted location unit, said method comprising the steps of:

periodically receiving GPS signals from a fleet of GPS satellites in said vehicle-mounted location unit;

maintaining predetermined aiding data in said vehicle-mounted location unit
25 in response to said GPS signals;

initiating a request at said portable fob for directions to said vehicle;

transmitting said predetermined aiding data to said portable fob in response to said request;

receiving GPS signals from said fleet of GPS satellites in said portable fob
in response to said request;

said portable fob processing fob location data in response to said
predetermined aiding data;

5 transmitting said fob location data to said vehicle-mounted location unit;

said vehicle-mounted location unit determining a vehicle location;

said vehicle-mounted location unit determining bearing information in
response to said vehicle location and said fob location data;

10 transmitting said bearing information from said vehicle-mounted location
unit to said portable fob; and

displaying said bearing information to said user.

12. The method of claim 11 wherein said predetermined aiding data
comprises satellite ephemeris data.

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13. The method of claim 11 wherein said predetermined aiding data
comprises satellite clock data.

14. The method of claim 11 wherein said predetermined aiding data
20 comprises satellite Doppler data.

15. The method of claim 11 wherein said step of initiating a request is
comprised of activating a predetermined control element on said portable fob.

25 16. The method of claim 11 wherein said transmitting steps utilize
respective UHF transceivers in said portable fob and said vehicle-mounted location
unit.

17. The method of claim 11 wherein said fob location data comprises geographic coordinates.

18. The method of claim 11 wherein said fob location data comprises
5 pseudo-range data.

19. The method of claim 11 wherein said bearing information comprises a direction heading.

10 20. The method of claim 11 wherein said bearing information comprises a direction heading and a range.